MYCOTAXON

ISSN (print) 0093-4666 (online) 2154-8889 Mycotaxon, Ltd. ©2020

October–December 2020—Volume 135, pp. 719–727
https://doi.org/10.5248/135.719

Anasporidesmiella gen. nov. for an atypical *Sporidesmiella* species and for *A. manifesta* sp. nov.

Kai Zhang[1,2], Weihua Guo[1*], Gabriela Heredia[3],
José P. Delgado-Zúñiga[4], Jian Ma[5], Rafael F. Castañeda-Ruiz[6]

[1] *Institute of Ecology and Biodiversity, School of Life Sciences, Shandong University,*
Qingdao, 266237, China
[2] *Shandong Agriculture and Engineering University, Jinan, Shandong 250100, China*
[3] *Instituto de Ecología A.C., Carretera antigua a Coatepec 351,*
Congregación El Haya, 91070 Xalapa, Veracruz, México
[4] *Tecnológico de Estudios Superiores de Huixquilucan,*
Barrio El Río s/n, La Magdalena Chichicaspa, mpio. de Huixquilucan, Estado de México
[5] *College of Agronomy & Jiangxi Key Laboratory for Conservation & Utilization of Fungal Resources,*
Jiangxi Agricultural University, Nanchang, Jiangxi 330045, China
[6] *Instituto de Investigaciones Fundamentales en Agricultura Tropical (INIFAT)*
Alejandro de Humboldt, Calle 1 Esq. 2, Santiago de Las Vegas, C. Habana, Cuba, C.P. 17200

*Correspondence to: *whguo_sdu@163.com*

Abstract—The authors describe and illustrate new genus, *Anasporidesmiella*, typified by *Sporidesmiella angustobasilaris* [≡ *A. angustobasilaris*, comb. nov.], and a new species, *A. manifesta*. *Anasporidesmiella* is characterized by macronematous mononematous brown conidiophores frequently reduced to monoblastic determinate conidiogenous cells and solitary cylindrical distoseptate brown conidia with truncated or rounded bases. *Anasporidesmiella manifesta* is distinguished by cylindrical 7–12-distoseptate reddish-brown conidia with rounded basal cells. Several illustrations of conidiogenous cells and conidia of the *Sporidesmiella* species complement the discussion of the new genus.

Key words—asexual *Ascomycota*, hyphomycetes, systematics

Introduction

Kirk (1982), who established *Sporidesmiella* P.M. Kirk with *S. claviformis* P.M. Kirk as type species, included five other species and one variety.

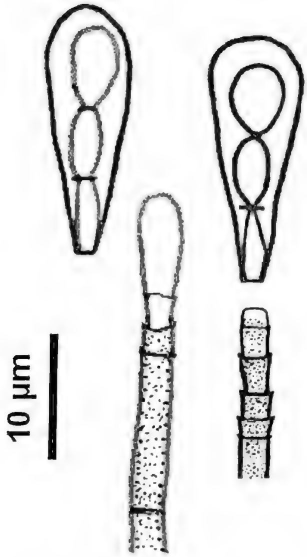
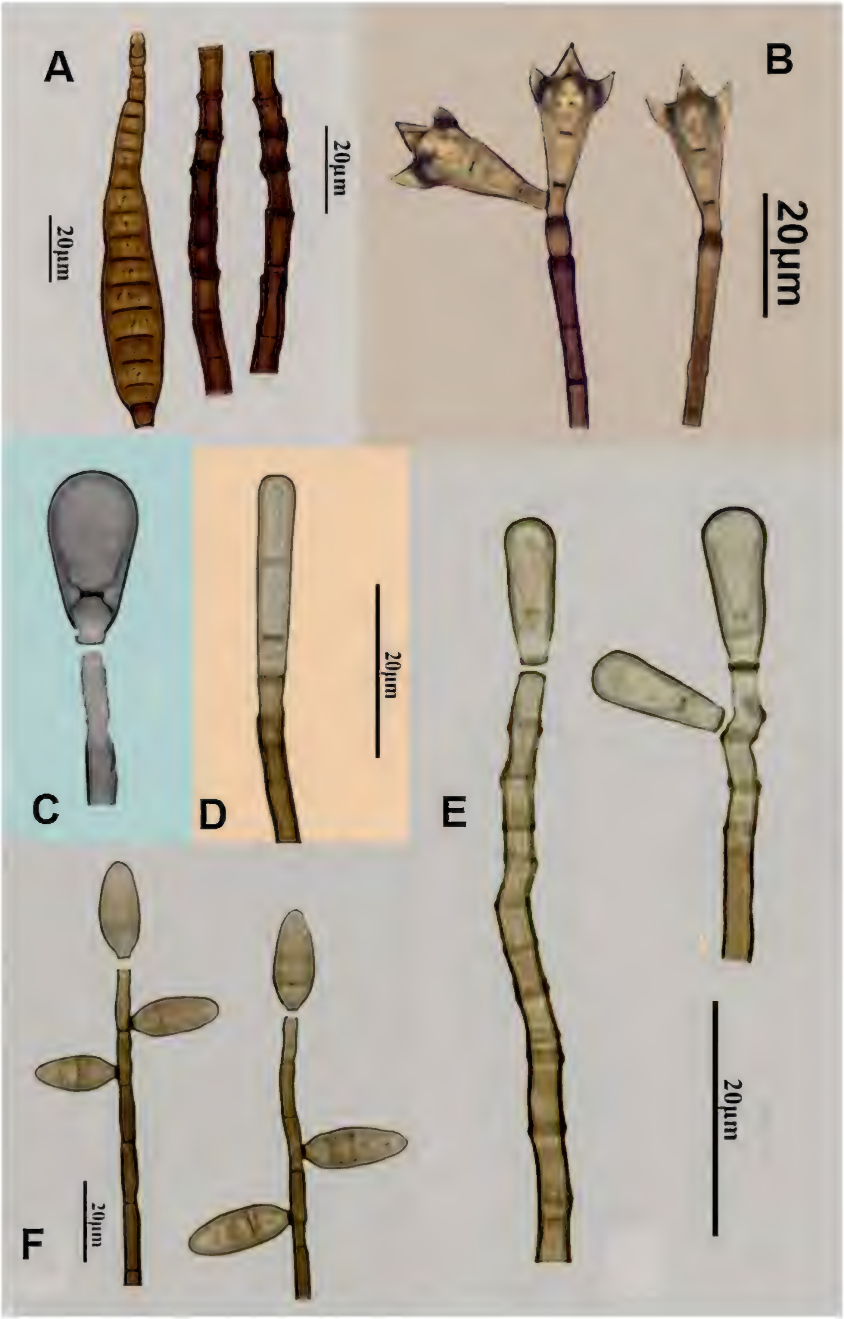


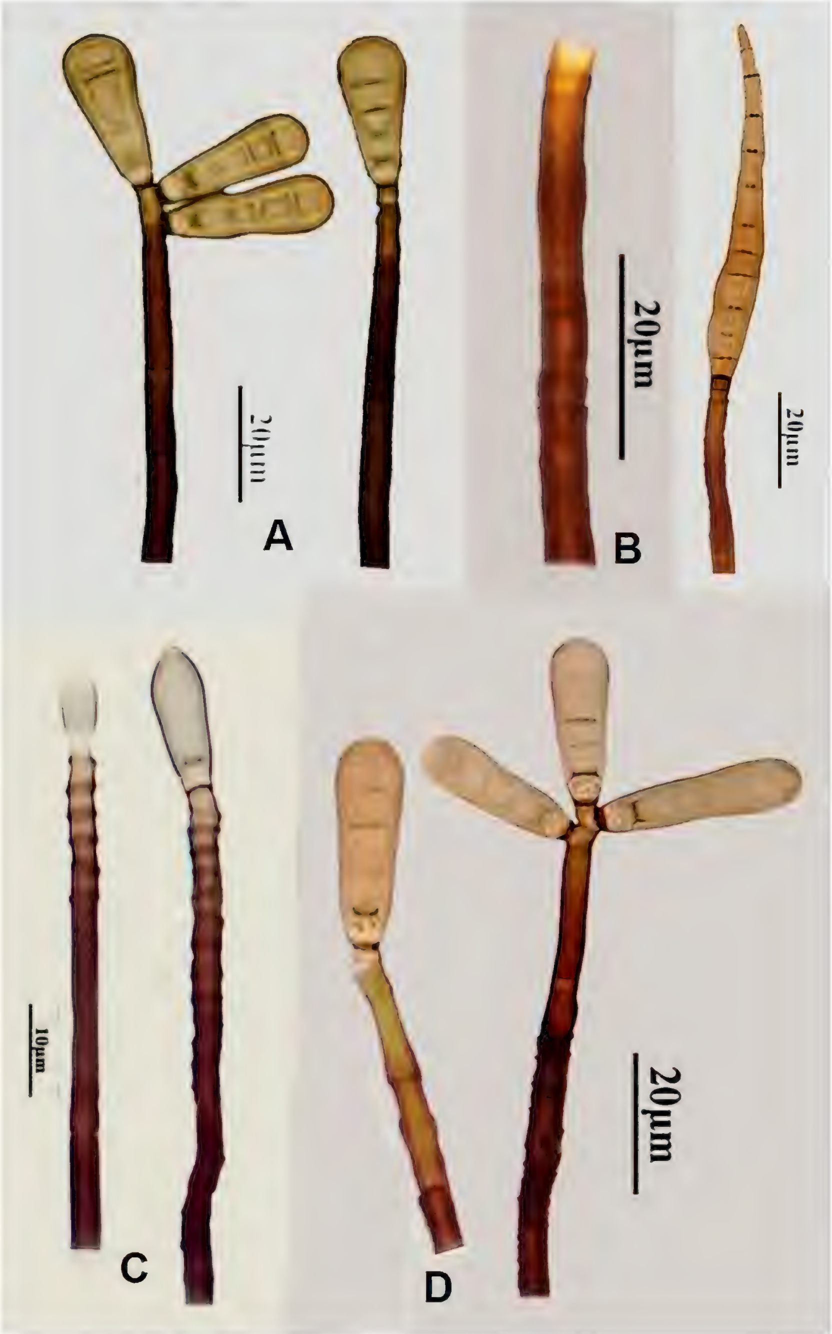
Fig. 1. *Sporidesmiella claviformis* (adapted from Kirk 1982: Fig. 1). Conidiogenous cells and conidia.

Sporidesmiella is distinguished by macronematous mononematous septate brown conidiophores and monoblastic terminal integrated indeterminate conidiogenous cells with numerous enteroblastic percurrent extensions. False sympodial elongations are occasionally observed where older conidia remain attached while a new enteroblastic extension of the conidiogenous cell produces a young conidium, which displaces the older conidium laterally. Such elongations can be repetitive, causing the main conidiophore axis to appear geniculate. *Sporidesmiella* (Kirk 1982) is also characterized by conidiophores with several annellations toward the apex (caused by the enteroblastic percurrent elongations) and basally (sub) truncate distoseptate conidia (Fig. 1). These characters (Figs 2, 3) are present in *Sporidesmiella archidendri* Jian Ma & X.G. Zhang, *S. corniformis* L.G. Ma & al., *S. curtiphora* Carmo & al., *S. guangdongensis* Jian Ma, *S. jiangxiensis* Jian Ma, *S. jiulianshanensis* Jian Ma, *S. lushanensis* Jian Ma, *S. machili* Jian Ma & X.G. Zhang, *S. nanlingensis* Jian Ma & X.G. Zhang, and

---

Fig. 2. *Sporidesmiella* spp., conidiogenous cells and conidia: A. ***S. archidendri*** (Ma & al. 2012); B. ***S. corniformis*** (Ai & al. 2019); C. ***S. curtiphora*** (Monteiro & al. 2014); D. ***S. guangdongensis*** (Ma 2016a); E. ***S. jiangxiensis*** (Ma 2016a); F. ***S. jiulianshanensis*** (Ma 2016b).


A
20µm
20µm
B
20µm
C
D
20µm
E
20µm
F
20µm


20μm
A
20μm
B
20μm
10μm
C
D
20μm

S. rosae Jian Ma & X.G. Zhang (Ai & al. 2019, Ma 2016a,b, Ma & al. 2012, 2015, Monteiro & al. 2014), but *Sporidesmiella angustobasilaris* (Holubová-Jechová 1987) differs morphologically from all other described *Sporidesmiella* species in its macronematous conidiophores, which are frequently reduced to lageniform determinate conidiogenous cells that lack percurrent extensions and produce distoseptate conidia with attenuated or rounded dark bases.

Here we propose a new genus *Anasporidesmiella*, which contains the new combination *A. angustobasilaris* to accommodate the atypical *Sporidesmiella* species plus a species new to science, *A. manifesta*.

Materials & methods

Samples of litter were placed in paper and plastic bags, taken to the laboratory, and prepared according to Castañeda-Ruiz & al. (2016). Mounts were prepared in PVL (polyvinyl alcohol and lactic acid) and measurements were made at a magnification of ×1000. Micrographs were obtained with a Nikon Eclipse 80i microscope equipped with bright field and Nomarski interference optics. The type specimens are deposited in the Herbarium of Instituto de Ecología A.C., Xalapa, Veracruz, Mexico (XAL).

Taxonomy

Anasporidesmiella K. Zhang, R.F. Castañeda, Heredia & Jian Ma, **gen. nov.**

MB 832848

Differs from *Sporidesmiella* by its lageniform, determinate conidiogenous cells and its distoseptate conidia with attenuate or rounded bases with dark basal scars.

Type species: *Sporidesmiella angustobasilaris* Hol.-Jech. [≡ *Anasporidesmiella angustobasilaris* (Hol.-Jech.) K. Zhang & al.]

Etymology: Greek, *ana-*, meaning upwards + Latin *sporidesmiella* for its similarity to the hyphomycetous genus *Sporidesmiella*.

Conidiophores macronematous, mononematous, unbranched, erect, straight, cylindrical to subulate, frequently reduced to conidiogenous cells, brown to dark brown. Conidiogenous cells monoblastic, integrated, terminal, lageniform, determinate, strongly attenuating toward the conidiogenous loci. Conidial secession schizolytic. Conidia solitary, acrogenous, cylindrical, long ellipsoidal to long oblong distoseptate, brown or dark brown, smooth-walled, bases tapered and truncate or rounded with a slightly melanized or dark basal scar.

Fig. 3. *Sporidesmiella* spp., conidiogenous cells and conidia: A. ***S. lushanensis*** (Ma 2016b); B. ***S. machili*** (Ma & al. 2012); C. ***S. nanlingensis*** (Ma & al. 2015); D. ***S. rosae*** (Ma & al. 2012).

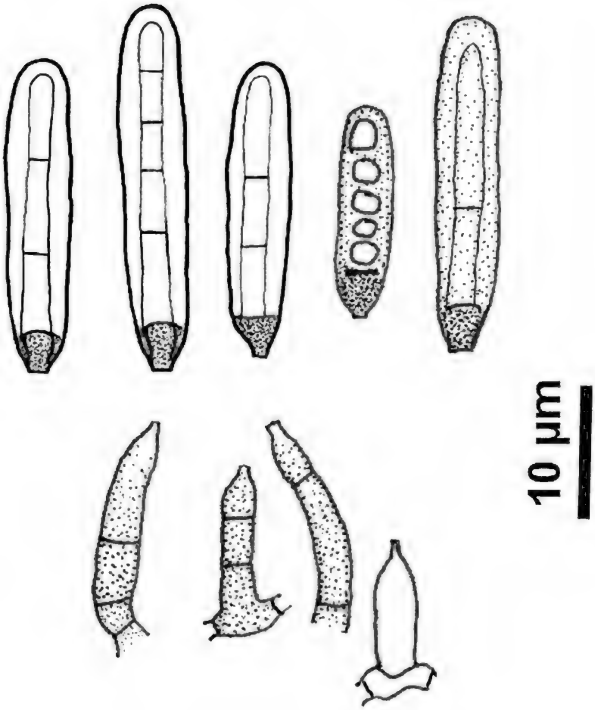


Fig. 4. *Anasporidesmiella angustobasilaris* (adapted from Holubová-Jechová 1987: Fig. 2.3). Conidiophores, conidiogenous cells, and conidia.

Anasporidesmiella angustobasilaris (Hol.-Jech.) K. Zhang, R.F. Castañeda, Heredia & Jian Ma, **comb. nov.** Fig. 4

MB 832849

≡ *Sporidesmiella angustobasilaris* Hol.-Jech, Česká Mykol. 41(1): 35 (1987).

Anasporidesmiella manifesta Heredia, J. Delgado, K. Zhang, R.F. Castañeda, & Jian Ma, **sp. nov.** Figs 5, 6

MB 832850

Type: Mexico, Mexico State, San José Huiloteapan, Huixquilucan, 19°23′N 99°20′W, on decaying wood of an unidentified tree, 29 October 2018, J.P. Delgado (**Holotype**, XAL cb2303).

Differs from *Anasporidesmiella angustobasilaris* by its 7–12-distoseptate conidia with rounded bases.

Etymology: Latin, *manifesta-*, meaning evident, clear, manifest.

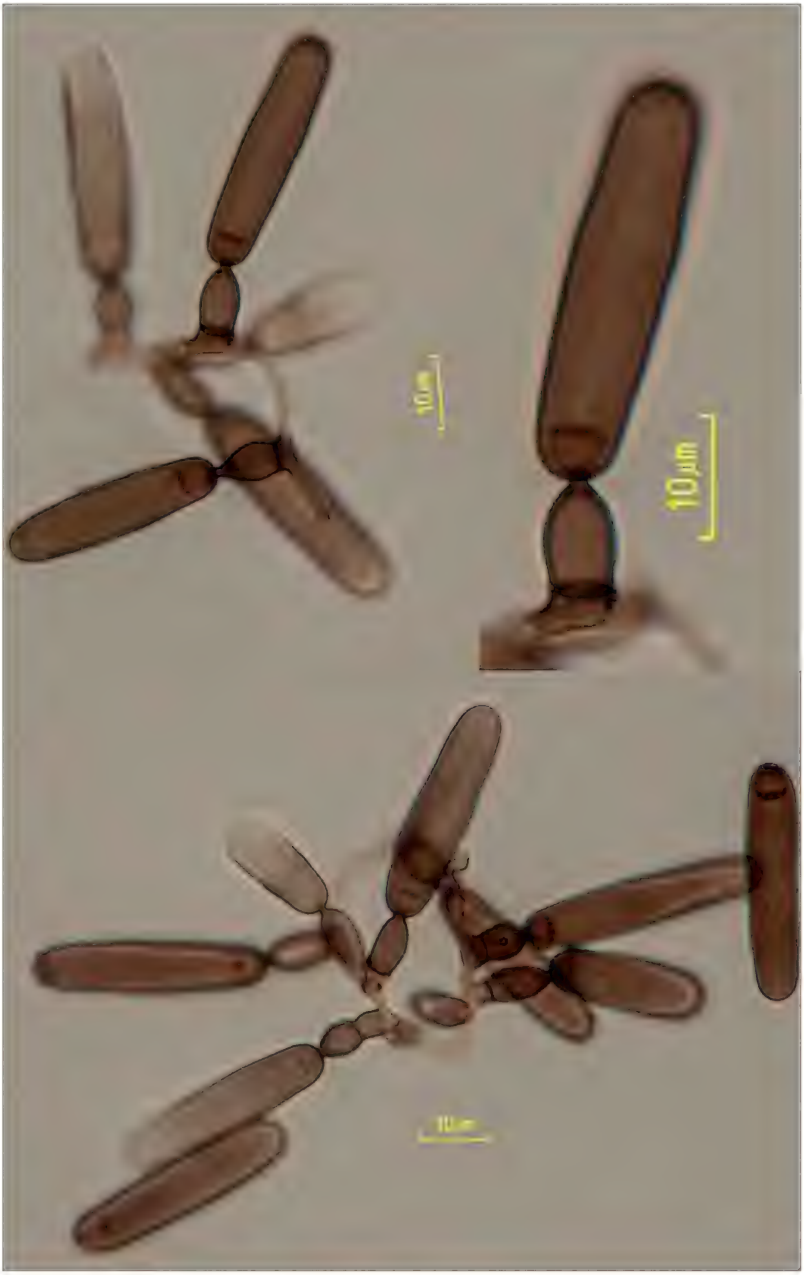


FIG. 5. *Anasporidesmiella manifesta* (ex holotype, XAL cb2303).
Hyphae, conidiophores, conidiogenous cells, and conidia.

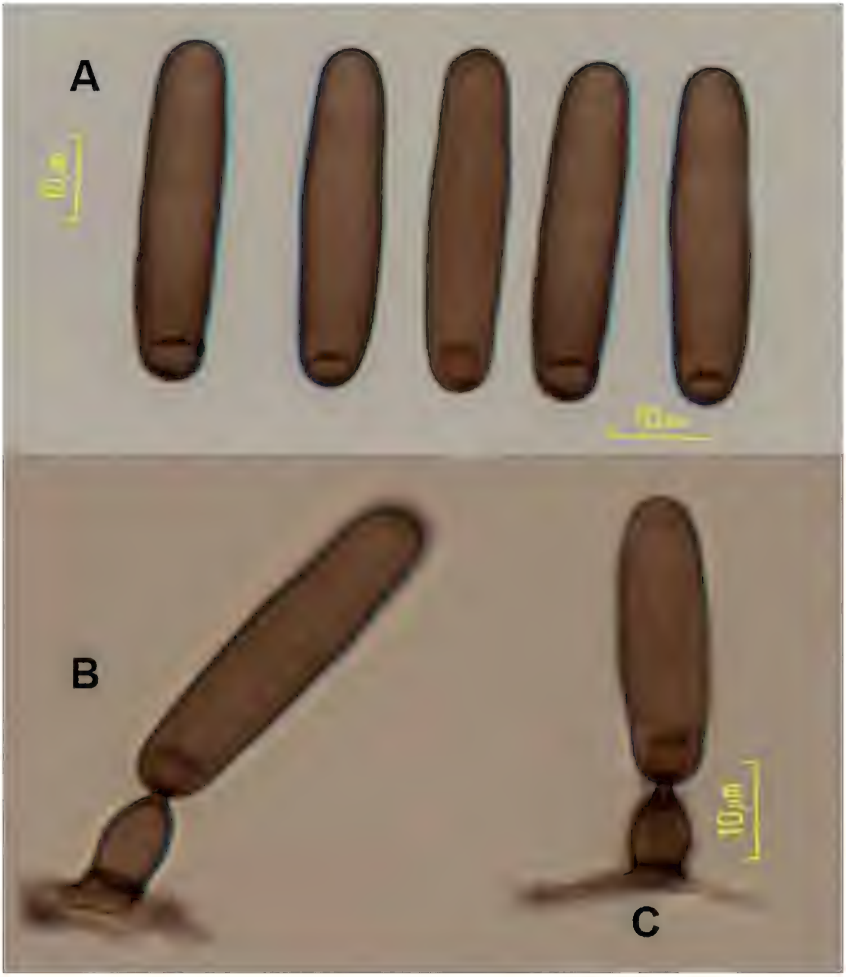


Fig. 6. *Anasporidesmiella manifesta* (ex holotype, XAL cb2303).
A. Conidia. B, C. Conidiogenous cells and conidia.

Colonies on the natural substrate effuse, funiculose, brown. Mycelium mostly superficial, composed of branched, septate, smooth-walled, pale brown to brown hyphae, 1–2 µm diam. Conidiophores macronematous, mononematous, unbranched, erect, straight, cylindrical to subulate, strongly attenuate at the apex, 1–2-septate, mostly reduced to conidiogenous cells, smooth-walled, brown to dark brown, 8–20 × 2–4 µm. Conidiogenous cells monoblastic, lageniform, strongly attenuating toward the conidiogenous loci, integrated, terminal, determinate, smooth-walled, brown, 5–11 × 4–5 µm. Conidial secession schizolytic. CONIDIA solitary, acrogenous, cylindrical to long oblong, rounded at the ends, 7–12-distoseptate, brown or dark brown, smooth-walled, with a slightly melanized basal scar, 28–49 × 6–9 µm.

NOTE: *Anasporidesmiella manifesta* conidia resemble those of *A. angustobasilaris* in size (24–44 × 6.5–10 µm) and cylindrical shape, but *A. angustobasilaris* produces conidia that are 3–10-distoseptate, attenuated and truncate at the base and rounded at the apex (Holubová-Jechová 1987). The illustrations provided for *A. angustobasilaris* in the original publication do not show any enteroblastic percurrent extension or annellate conidiogenous cells (FIG. 4), although its protologue described the conidiogenous cells as lageniform and "percurrently proliferating" (Holubová-Jechová 1987).

Acknowledgments

This work was financed by the National Natural Science Foundation Program of PR China (31870016). The authors express their sincere gratitude to Dr. Josiane S. Monteiro and Dr. De-Wei Li for their critical review of the manuscript. We acknowledge the facilities provided by Dr. P.M. Kirk and Dr. K. Bensch through the Index Fungorum and MycoBank websites, respectively. Dr. Lorelei Norvell's editorial review and Dr. Shaun Pennycook's nomenclature review are greatly appreciated.

Literature cited

Ai CC, Xia JW, Zhang XG, Geng Y, Ma LG. 2019. *Sporidesmiella corniformis* sp. nov. from China. Mycotaxon 134: 257–260. https://doi.org/10.5248/134.257

Castañeda-Ruiz RF, Heredia G, Gusmão LFP, Li DW. 2016. Fungal diversity of Central and South America. 197–217, in: DW Li (ed.). Biology of Microfungi. Springer International Publishing. https://doi.org/10.1007/978-3-319-29137-6_9

Holubová-Jechová V. 1987. Studies on Hyphomycetes from Cuba V. Six new species of dematiaceous hyphomycetes from Havana Province. Česká Mykologie 41: 74–85.

Kirk PM. 1982. New or interesting microfungi VI. *Sporidesmiella* gen. nov. (hyphomycetes). Transactions of the British Mycological Society 79: 479–489. https://doi.org/10.1016/S0007-1536(82)80040-5

Ma J. 2016a. *Sporidesmiella guangdongensis* and *S. jiangxiensis* spp. nov. on dead branches from southern China. Sydowia 68: 113–118.

Ma J. 2016b. *Sporidesmiella lushanensis* and *S. jiulianshanensis* spp. nov. and a new record from China. Mycotaxon 131(3): 575–581. https://doi.org/10.5248/131.575

Ma J, Zhang YD, Ma LG, Castañeda-Ruiz RF, Zhang XG. 2012. Three new species of *Sporidesmiella* from southern China. Mycoscience 53: 187–193. https://doi.org/10.1007/S10267-011-0152-1

Ma J, Xia JW, Castañeda-Ruiz RF, Zhang XG. 2015. Two new species of *Sporidesmiella* from southern China. Nova Hedwigia 101: 131–137. https://doi.org/10.1127/nova_hedwigia/2015/0254

Monteiro JS, Carmo LT, Fiúza PO, Ottoni BMP, Gusmão LFP, Castañeda-Ruiz RF. 2014. New species of microfungi from Brazilian Amazon rainforests. Mycotaxon 127: 81–87. https://doi.org/10.5248/127.81